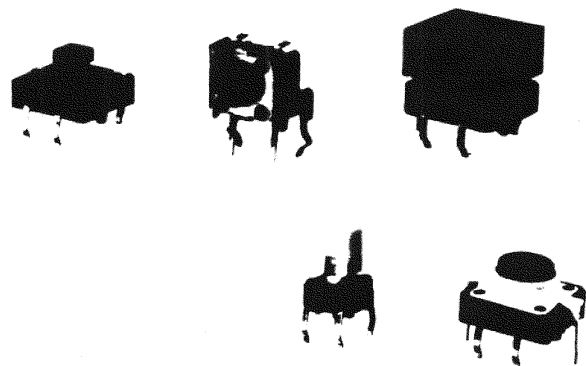


Mechanical Keyswitch

Features

- Extended mechanical/electrical service life: 10 x 10⁶ operations for 12 x 12 mm type and 1 x 10⁶ operations for the 6 x 6 mm type
- Ideal for applications such as audio, office and communications equipment, measuring instruments, TVs, VCRs, etc.
- Surface illumination type, vertical type, high force type, and gold-plated contact type are available as series versions
- Flux-tight base structure allows automatic soldering of the keyswitches onto a PC board
- All switches are miniature, low profiled and housed in a 6 x 6 mm or 12 x 12 mm case
- Snap-action contact mechanism assures short key stroking with a sharp click for secure input



Ordering Information

6 x 6 mm type

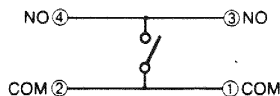
		Classification	General-purpose type (OF = 100 g)		High force type (OF = 150 g)	
		Ground terminal	Not provided	Provided	Not provided	Provided
Type	Plunger	Switch height x pitch				
Standard	Flat	4.3 x 6.5 mm	B3F-1000	B3F-1100	B3F-1002	B3F-1102
		5.0 x 6.5 mm	B3F-1020	B3F-1120	B3F-1022	B3F-1122
		5.0 x 7.5 mm	—	B3F-1110	—	—
	Projected	7.3 x 6.5 mm	B3F-1050	B3F-1150	B3F-1052	B3F-1152
Vertical	Flat	3.15 mm	—	B3F-3100	—	B3F-3102
		3.85 mm	—	B3F-3120	—	B3F-3122
	Projected	6.15 mm	—	B3F-3150	—	B3F-3152

12 x 12 mm type

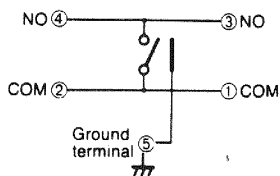
		Classification	General-purpose type (OF = 130 g)		High force type (OF = 260 g)	
		Ground terminal	Not provided	Provided	Not provided	Provided
Type	Plunger	Switch height x pitch				
Standard	Flat	4.3 x 12.5 mm	B3F-4000	B3F-4100	B3F-4005	B3F-4105
	Projected	7.3 x 12.5 mm	B3F-4050	B3F-4150	B3F-4055	B3F-4155
Long service life	Flat	4.3 x 12.5 mm	B3F-5000	B3F-5100	—	—
	Projected	7.3 x 12.5 mm	B3F-5050	B3F-5150	—	—
High reliability gold-plated contact	Flat	4.3 x 12.5 mm	B3F-5001	B3F-5101	—	—
	Projected	7.3 x 12.5 mm	B3F-5051	B3F-5151	—	—
Surface illumination	Red LED	7.3 x 12.5 mm	B3F-9100	—	—	—
	Green LED	7.3 x 12.5 mm	B3F-9200	—	—	—
	Yellow LED	7.3 x 12.5 mm	B3F-9300	—	—	—

Contact Form

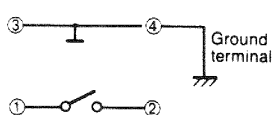
B3F-10 □□
-40 □□
-50 □□



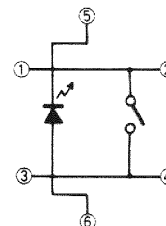
B3F-11 □□
-41 □□
-51 □□



B3F-3 □□□



B3F-9 □□□



Characteristics

(Data shown are of initial value)

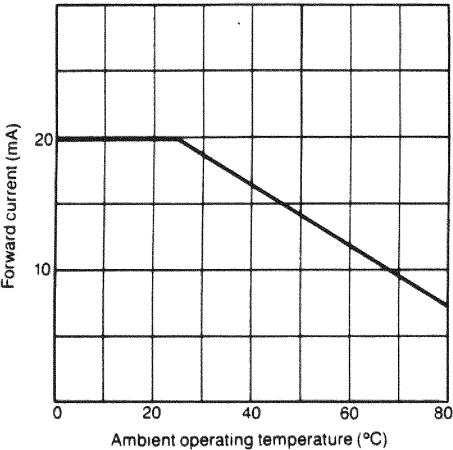
	B3F-1□□□ -3□□□	B3F-4□□□	B3F-5□□□	B3F-9□□□
Switching capacity	50 mA 24 VDC (resistive load)			
Min. permissible load	1 mA 5 VDC (resistive load)			
Contact resistance	100 mΩ max.			
Insulation resistance	100 MΩ min. (at 250 VDC)			
Dielectric strength	500 VAC, 50/60 Hz for 1 minute			
Bounce time	5msec max.			
LED current	See "Forward current derating curve"			
Vibration	Malfunction durability: 10 to 55 Hz, 1.5 mm double amplitude			
Shock	Mechanical durability: 1,000 m/s ² (approx. 100 G's)			
	Malfunction durability: 100 m/s ² (approx. 10 G's)			
Ambient temperature	-25 to +70°C			
Humidity	35 to 85% RH			
Service life*	Mechanical/ electrical: 1 x 10 ⁶ (0.3 x 10 ⁶) operations min.	Mechanical/ electrical: 3 x 10 ⁶ (0.3 x 10 ⁶) operations min.	Mechanical/ electrical: 10 x 10 ⁶ operations min.	Mechanical/ electrical: 1 x 10 ⁶ operations min.
Weight**	Approx. 0.25 g	Approx. 0.85 g	Approx. 0.85 g	Approx. 0.85 g

Note: 1. *Figure in parentheses denotes the service life of high force type.

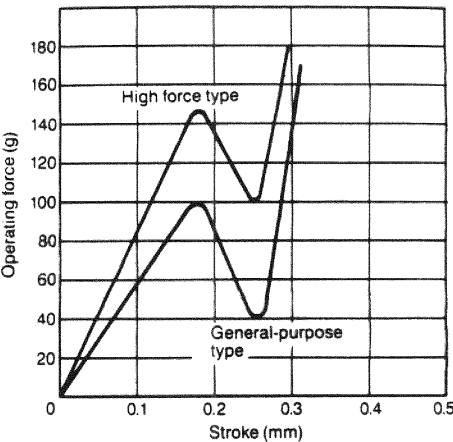
2. **Denotes the weight of standard type.

Characteristic Data

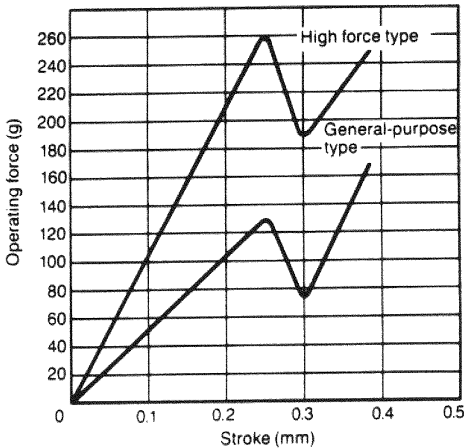
Forward current derating curve
B3F-9□□□



Operating force vs. stroke
B3F-1□□□/-3□□□
(typical example)



B3F-4□□□/-5□□□/-9□□□
(typical example)



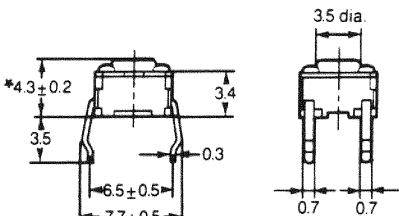
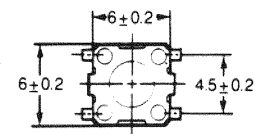
Operating Characteristics

	B3F-1□□□, B3F-3□□□		B3F-4□□□, B3F-5□□□, B3F-9□□□	
	General-purpose type	High force type	General-purpose type	High force type
OF	100±30 g	150±50 g	130±50 g	260±70 g
RF min.	20 g	50 g	30 g	50 g
PT	0.25 ^{+0.2} _{-0.1} mm	0.25 ^{+0.2} _{-0.1} mm	0.3 ^{+0.2} _{-0.1} mm	0.3 ^{+0.2} _{-0.1} mm

Dimensions

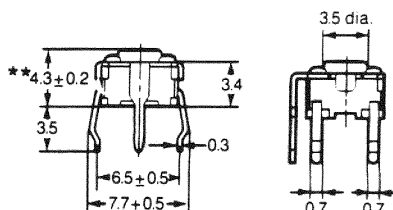
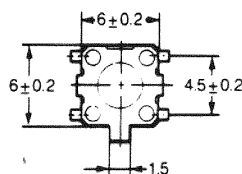
[Unit: mm]

B3F-1000/-1002/-1020*/-1022*



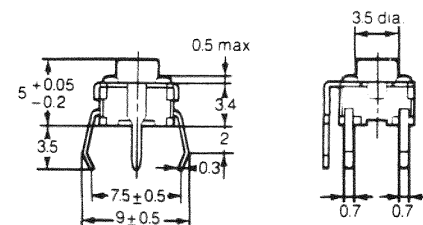
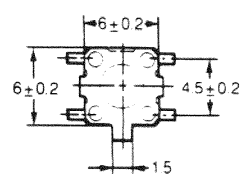
*Height of B3F-1020/-1022 is
5 +0.05
-0.2 mm

B3F-1100/-1102/-1120**/-1122**

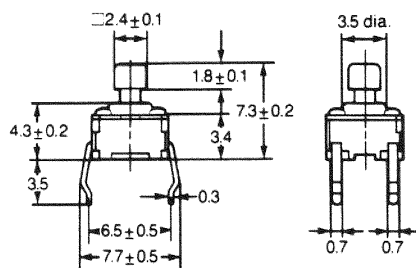
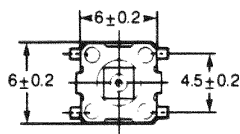


**Height of B3F-1120/-1122 is
5 +0.05
-0.2 mm

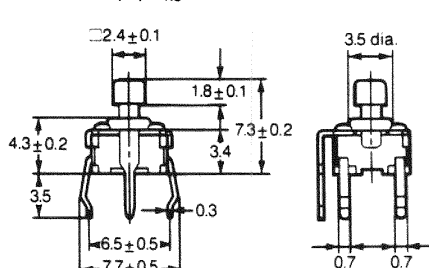
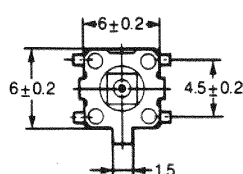
B3F-1110



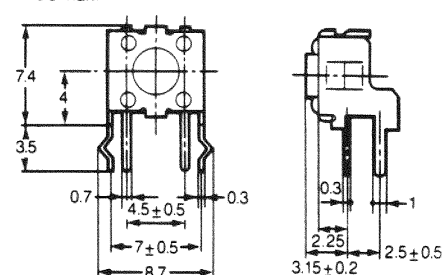
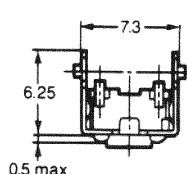
B3F-1050/-1052



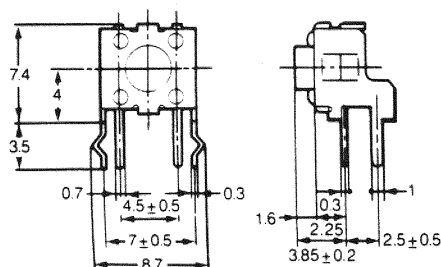
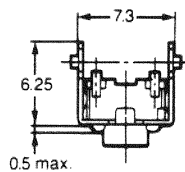
B3F-1150/-1152



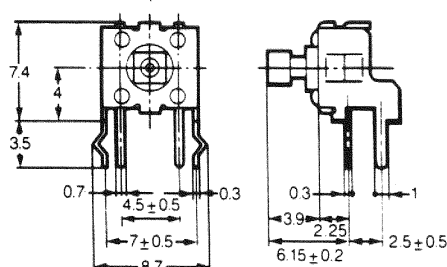
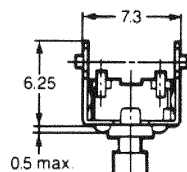
B3F-3100/-3102



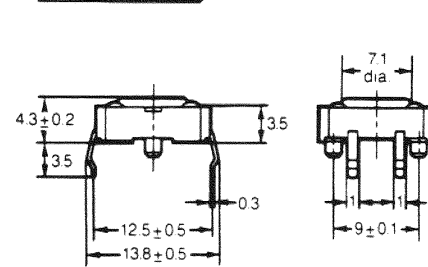
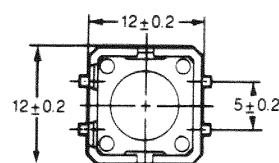
B3F-3120/-3122



B3F-3150/-3152



B3F-4000/-5000/-4005/-5001



Note: 1. Unless otherwise specified, a tolerance of ± 0.4 mm applies to all dimensions.

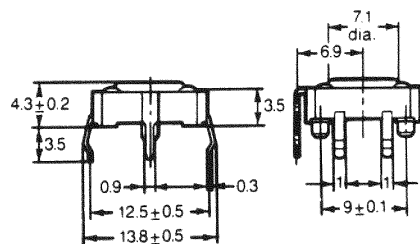
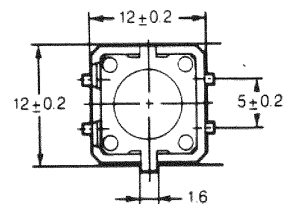
2. * Fit the projection of the switch into this hole to secure the switch.

3. ** Terminal numbers are not indicated on this switch. With the switch turned over so that the logo mark "OMRON" is visible on the upper part of the rear side of the switch base, the terminal on the right of the logo mark is numbered "1" and that on the bottom right is "3". Accordingly, two terminals on the left side are numbered "2" and "4" respectively.

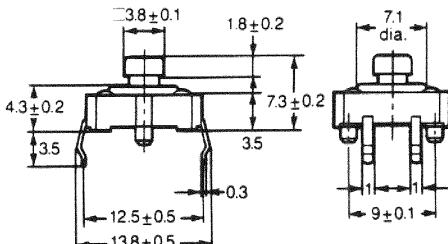
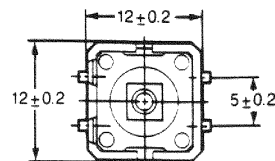
Dimensions

[Unit: mm]

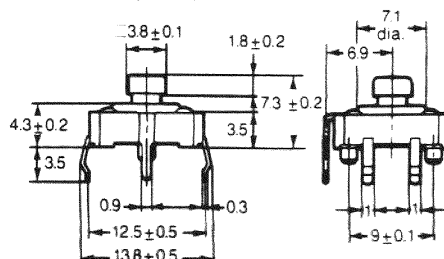
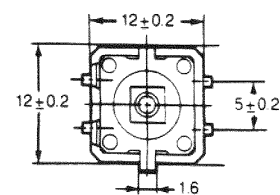
B3F-4100/-5100/-4105/-5101



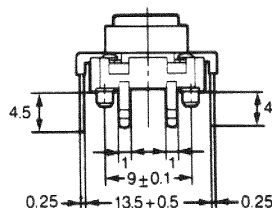
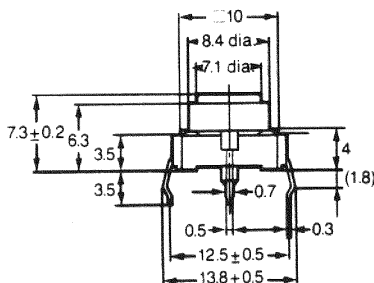
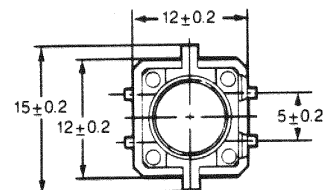
B3F-4050/-5050/-4055/-5051



B3F-4150/-5150/-4155/-5151

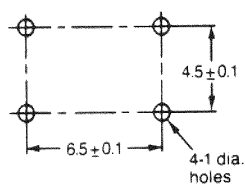


B3F-9

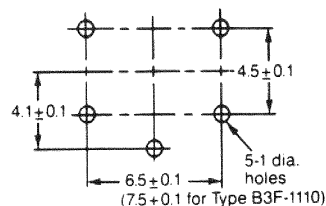


Mounting holes (top view)

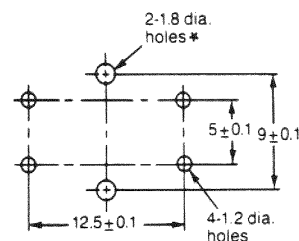
B3F-10



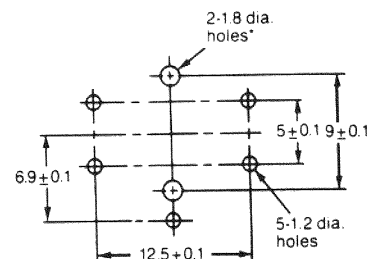
B3F-11



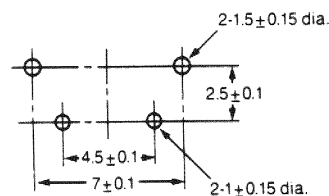
B3F-40/-50



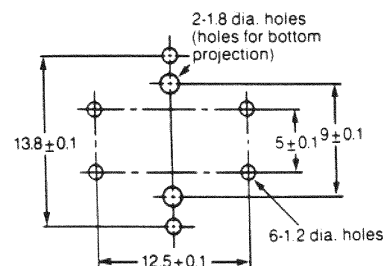
B3F-41/-51



B3F-31



B3F-9



Note: 1. Unless otherwise specified, a tolerance of ± 0.4 mm applies to all dimensions.

2. * Fit the projection of the switch into this hole to secure the switch.

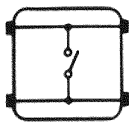
3. ** Terminal numbers are not indicated on this switch. With the switch turned over so that the logo mark "OMRON" is visible on the upper part of the rear side of the switch base, the terminal on the right of the logo mark is numbered "1" and that on the bottom right is "3". Accordingly, two terminals on the left side are numbered "2" and "4" respectively.

Dimensions

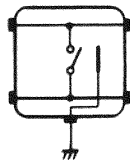
[Unit: mm]

Terminal arrangement/Internal connection (top view)

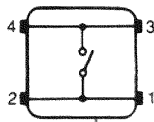
B3F-10□□**



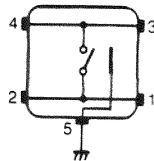
B3F-11□□**



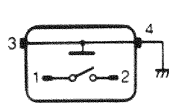
B3F-40□□/-50□□



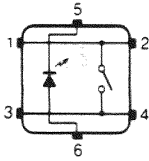
B3F-41□□/-51□□



B3F-31□□



B3F-9□□□

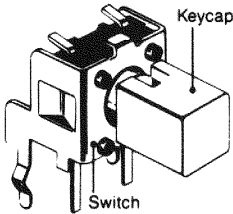
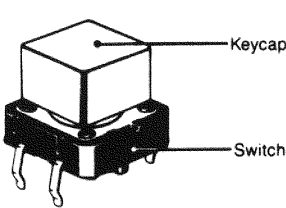


Note: 1. *Fit the projection of the switch into this hole to secure the switch.

2. ** Terminal numbers are not indicated on this switch. With the switch turned over so that the logo mark "OMRON" is visible on the upper part of the rear side of the switch base, the terminal on the right of the logo mark is numbered "1" and that on the bottom right is "3". Accordingly, two terminals on the left side are numbered "2" and "4", respectively.

Accessories (Order separately)

Keycaps



Ordering information

Keycap color	Applicable type	12 x 12 mm		
	Keycap size	4 x 4 mm	9 x 9 mm	12 x 12 mm
Light gray		B32-1000	B32-1200	B32-1300
Black		B32-1010	B32-1210	B32-1310
Orange		B32-1020	B32-1220	B32-1320
Yellow		B32-1030	B32-1230	B32-1330
Blue		B32-1040	B32-1240	B32-1340

Note: 1. Keycaps are available in different sizes and colors for exclusive use of the 6 x 6 mm and 12 x 12 mm projected plunger versions of Model B3F.

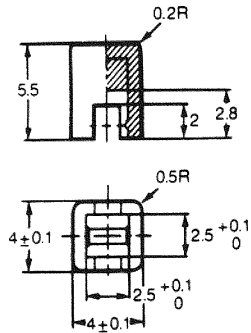
Accessories (Order separately)

Keycaps

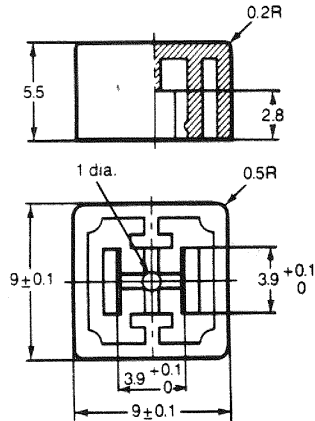
Dimensions

[Unit: mm]

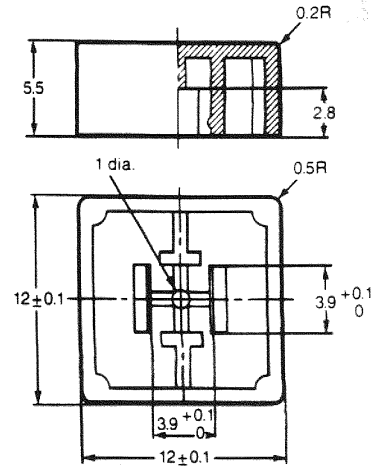
B32-10□0



B32-12□0

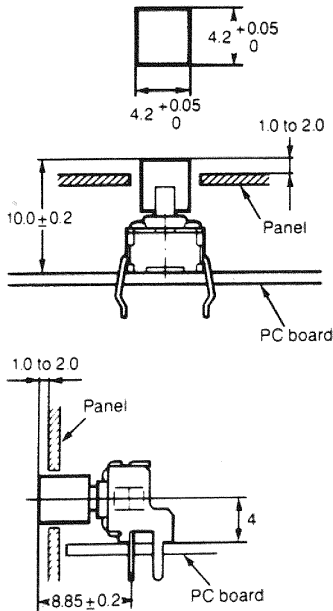


B32-13□0

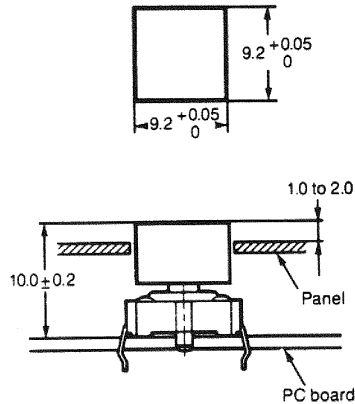


Panel cutouts

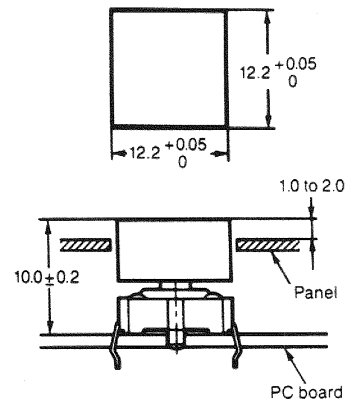
B32-10□0



B32-12□0



B32-13□0



Note: 1. Unless otherwise specified, a tolerance of ± 0.2 mm applies to all dimensions.

2. Keycaps are available in different sizes and colors for exclusive use of the 6 x 6 mm and 12 x 12 mm projected plunger versions of model B3F.

Hints on Correct Use

- Mount the keyswitches only on a PC board with a minimum thickness of 1.6 mm.
- Dip the bottom of the PC board as follows:
Solder temperature: $250 \pm 5^\circ\text{C}$
Exposure to molten solder: 5 sec max.
Do not dip solder the keyswitches more than twice.
- Do not clean the keyswitches with a cleaning solvent after soldering.